HISTOLOGICAL ASPECTS IN THE DESIGNING OF ALZHEIMER'S TYPE DEMENTIA OF VASCULAR ORIGIN AND THE MANIFESTATION OF THE BRAIN TISSUE CELLULAR REGENERATION IN RATS

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Background. The brain structure in patients with Alzheimer's disease, caused initially by vascular damage, is poorly known regarding morphological aspects.

Objective. To study the histological features of the brain tissue in the designing of Alzheimer's type dementia of vascular origin and the manifestation of cellular regeneration in rats.

Methods. The experiment was performed on 32 male WAG rats weighing 180-250 g. Rats from experimental group (group E) were injected with aqueous solution of sodium nitrite at a dosage of 50 mg/kg of body mass intraperitoneally during 14 days. Control animals were injected with 0.9% sodium chloride. The formation of the Alzheimer's disease model caused by vascular injury has been proven and published. Congo-red and gallocyanine-chromium alum according to Einarson's method stained slides of brain were received. The expression of the Ki-67 antigen was determined immunohistochemically (Thermo Fischer Scientific).

Results. In gr. E the subendothelial deposition of congophilic masses and endothelium damage were observed in the brain arteries. Small intracerebral vessels had less amyloid changes. The perivascular edema, parietal thrombosis, and an increase in the number of pericytes over endothelial cells by 1.5-2 times and the Ki-67 labeled capillary endothelial cells in all parts of the brain were recorded. Also, it was found the dystrophic processes in neurons, proliferation of glial cells, ependymocytes, epithelial cells of chorioid plexus, the necrosis foci formation in the cortex, subcortical substance, hippocampus, which was accompanied by the inflammatory reactions.

Conclusions. The blood vessels and neurons injury in various parts of the brain in rats with model of Alzheimer's type dementia of vascular origin triggered the regeneration at the cellular level which represented the death of these cells.